Post H1N1 vaccination narcolepsy-cataplexy with decreased CSF beta-amyloid

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To the Editor,

Recent reports postulate an association between H1N1 infection or vaccine and the onset of narcolepsy with cataplexy (NC).[1,2] The German Paul Ehrlich institute's database includes 13 possible cases of NC after vaccination.[3] We present the first confirmed case of NC after vaccination in Germany.

Case

A 17-year-old girl reported the sudden onset of excessive daytime sleepiness and frequent cataplexies (30/day) about 4 weeks after H1N1 flu-vaccination on November 17th, 2009 with Pandemrix® (with AS03 as adjuvant). Simultaneously, she noticed weight gain of 10 kg. Sleepiness had aggravated since spring 2010, whereas cataplexies were less frequent. On neurological examination she appeared well, brain magnetic resonance imaging (MRI) was normal. In video-polysomnography immediate onset of REM sleep (0 min); a fragmented sleep pattern and REM sleep behavior disorder with excessive phasic muscle burts (video-graphically: boxing, kicking) were found. On Multiple Sleep Latency Test, mean sleep latency was 1.5 min and 4 sleep onset REM periods (SOREMP) occurred. Laboratory findings included the following: HLA DQB1*0602 was positive; CSF hypocretin-1 was not detectable (< 20 pg/mL); serum and CSF anti-Trib2 antibodies were negative; albumin was 10.3 mg/l (normal range 14-24); beta- amyloid$_{1-42}$ in CSF was 152mg/l (normal >500 mg/L); tau was within normal ranges; anti-Streptococcal antibodies (ASO) were 790 IE/ml (normal <200IE/ml) and anti-DNase B (ADB) antibodies were 1010 IU/ml (normal < 200 IU/ml).

Discussion

Our case is in line with previous findings of rapid and severe development of NC symptoms after H1N1 vaccination.[1] Strikingly, we found an unexpected decrease of CSF beta-amyloid. In another NC patient, a 59-year-old woman without previous vaccination, beta-amyloid was also decreased (275 pg/ml) in CSF (unpublished data).

Beta-amyloid is not only of relevance in dementia processes but is also reported to modulate the response on environmental stressors in brain and supposed to have antimicrobial properties against different classes of microorganism, including some strains of streptococci.[4] In recent onset NC, elevated ASO are found.[5] Beta-amyloid decrease in CSF could indicate its involvement in (post-infectious) immunological processes in narcolepsy.

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